# **CLIFFORD**

World-Class Auto Security<sup>M</sup>

300

Owner's Manual

## Table of Contents

Standard Features of the ACE 300	3
Your 4-button/12-channel remote controls	6
How to use your keychain remote control	6
What each button/channel does	7
Anti-CodeGrabbing (ACG) with Random Code Encryption	8
Enhanced AutoArming™	9
AutoArming enable/disable	9
AutoArm & Lock	9
Instant AutoArming bypass	9
Valet mode	9
To enable valet mode	9
To exit valet mode	9
Remote controlled valet mode entry and exit	9
Keyless entry in valet mode	9
How to interpret the chirps and parking light flashes	10
Selectable starter/ignition interrupt	10
AutoLock and AutoUnLock™	10
Dual-level tampering warning	10
Smart trunk release option	10

### Table of Contents (cont.)

Smart AutoTesting™
Specific malfunction identification
Automatic malfunction bypass
TotalRecall™11
Smart prior intrusion attempt alert
Piezo Sensor
FACT — False Alarm Control and Test
High-output siren
Long-term chirp silencing
Remote controlled chirp muting
SmartPowerUp™ II
User-selectable features
<b>EXAMPLE</b>
Adding new remote controls
How to erase the codes of lost or stolen remote controls

#### Standard Features of the ACE 300

- ✓ Lifetime Warranty For as long as you own the vehicle, Clifford will repair or replace the control unit and remote controls free of charge (see warranty card for full details).
- A Pair of 4-Button/12-Channel Remote Controls Fingertip command from a typical range of 100 feet.
- ✓ Anti-CodeGrabbing™ (ACG) with Random Code Encryption— A
  code-grabber is a new device that lets a thief record and capture off the air from a
  distance the digital code transmitted by your remote control whenever you arm
  your car. When you leave, the thief replays the code to disarm the alarm and
  unlock your car's doors. ACG with Random Code Encryption makes thieves'
  code-grabbers completely useless, because each time you press the button on
  your remote control a different random code is transmitted, yet the system will
  flawlessly recognize and respond to your transmitter's new code and ignore all
  others.
- ✓ Full-Time Remote Panic with Automatic Door Locking and Unlocking
   If you feel threatened, you can, with just a fingertip touch on your remote control, sound the siren, flash the parking lights and unlock your vehicle's power door locks for quick entry into your car without fumbling with your keys. If you press the panic button while driving, the siren will sound, the lights will flash and the doors will lock to shield you from the assailant.
- Remote Controlled Valet Mode— You can command the system to enter or exit valet mode with just a press of button from 100 feet away. Parking light flashes confirm valet mode entry and exit.
- ✓ Remote Door Locking and Unlocking No more fumbling with keys in the dark or bad weather! A press of a button on the remote simultaneously arms ACE 300 and locks your car's power locks. Another press disarms and unlocks.
  - *User-Selectable AutoLock/AutoUnLock*™ Automatically locks the doors the instant you start the engine, and unlocks the doors when you park.
  - Deluxe Remote Keyless Entry in Valet Mode Use your remote control to lock and unlock the car doors and remotely activate system accessories even while the system is in valet mode.
- ☑ Built-In Parking Light Flasher Visually confirms door lock and system status.

#### Standard Features of the ACE 300 (cont.)

- ☑ Dual-Mode Chirp Silencing
   Your choice of either long-term chirp silencing or remote controlled chirp muting whenever you wish.
- ☑ Enhanced User-Selectable AutoArming™— Automatically arms itself
  "passively" if you forget. May qualify you for an insurance discount that could
  pay for the system (consult your insurance company).
  - AutoArming Enable/Disable You may disable or re-enable AutoArming with just a few flicks of a switch.
  - AutoArm & Lock™ You may set the system to automatically lock the doors every time the system AutoArms.
  - Instant AutoArm Bypass Just two quick turns of the ignition switch will bypass AutoArming for one cycle perfect when fueling the vehicle. The AutoArming feature is automatically restored the next time you park your vehicle.
- ☑ Smart Remote Trunk Release Capability An electronic interlock assures that the optional remote trunk release can be activated only when the system is disarmed. To further prevent any possibility of unintentional opening of the trunk, the interlock also makes sure that the trunk release cannot be remotely activated while driving.
- ☑ All Electronic Piezo Sensor
   An all-electronic vibration/impact sensor that delivers the utmost reliability and provides more accurate discrimination between genuine intrusion attempts and non-threatening conditions (like a large truck passing by) that cause other sensors to false alarm.
- ✓ Patented Smart AutoTesting™—Automatically tests all system triggers and sensors every time you remotely arm and warns you if you accidentally arm your ACE 300 system with the hood or trunk open. If there is a genuine trigger or sensor malfunction, the system will specifically identify the problem, thereby eliminating time-consuming and costly trouble-shooting.
- ✓ Patented Malfunction AutoBypass™—In the unlikely event of a trigger or sensor malfunction, your ACE 300 will automatically bypass the malfunction and arm all other points to continue relentless protection of your vehicle.

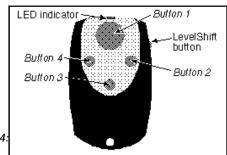
#### Standard Features of the ACE 300 (cont.)

- ✓ TotalRecall™— ACE 300's memory stores the identity of the last trigger or sensor activated. This provides an invaluable diagnostic means, since, whenever you wish, the system will visually identify the last activated trigger or sensor.
- ✓ Patented Smart Prior Intrusion Attempt Alert When you return to your vehicle and remotely disarm your ACE 300, a special chirp and parking light flash sequence will audibly and visually alert you from a distance if an intrusion attempt was foiled while you were away. Your ACE 300 will even identify the specific trigger or sensor that detected the intrusion attempt.
- ✓ Patented Remote Control Code Learning Just a few flicks of a switch lets you match to the system up to 4 different 12-channel Clifford ACG remote controls. Just as easily, a lost or stolen remote control can be deleted from the system memory.
- Control Unit with 5 Channels— For remote controlled system operation and remote controlled accessories.
- Advanced CMOS Microcomputer —Very large scale integration (VLSI) microprocessor commands and monitors all system functions more than 1,000,000 times per second, yet it draws less power than the vehicle's clock, so it won't deplete your car battery like other alarms.
- ✓ Selectable Starter/Ignition Interrupt You may choose either a fault-proof mode, which lets you start the engine even in the unlikely event of a system malfunction, or ultra-secure mode that ensures a thief won't be able to start the vehicle even if he finds the system control unit and disconnects it!
- ☑ Hood/Trunk Trigger Input
   For full perimeter protection of the engine compartment and trunk contents (may require optional pin switches).
- ✓ Patented SmartPowerUp™ II When power to the system is disconnected, the system's non-volatile memory always remembers the last state (armed, disarmed or valet mode) and returns to that state when power is restored. So if a thief disconnects the power and then restores it in an attempt to start the car, the system will re-arm and instantly sound the siren while immobilizing the vehicle.

#### Your 4-button/12-channel remote controls

The 4-button/12-channel remote controls are ultra-sophisticated miniature radio transmitters powered by a tiny 12-volt battery. Range is up to 100 feet. A weak remote control battery will reduce range. Electrical interference and even sunspots can interrupt the signal from your remote control to the system. If this happens, repeatedly press the remote control button (this works better than holding the button down). The 4-button/12-channel remote control is the key to your system. It has Clifford's Anti-CodeGrabbing<sup>TM</sup> (ACG) technology for the ultimate protection against "code-grabbing" devices (see page 8). You will use your remote control to arm and disarm the system, lock and unlock the doors, activate the panic feature, enable/exit valet mode, command options such as a remote trunk release, power window operation, electric garage door interface and even remote starting of the engine and heater or air conditioner, among other options.

How to use your keychain remote control Your remote control can individually command up to 12 different system functions and options. It's like having a TV with 12 channels. You change channels (functions) with your keychain remote control. But instead of putting 12 buttons on the remote, we made it easy:



- Just press either button 1, 2, 3 or 4.

  For instance, to transmit channel 3, press button 3. While you transmit, the LED indicator will blink once every second: this indicates level 1.
- *To transmit either channel 5, 6, 7 or 8*: Press the LevelShift button once. This shifts buttons 1–4 to level 2 (channels 5–8). Then press the desired button within the next 7 seconds. For instance, to transmit channel 5, press the LevelShift button once, then press button 1. While you transmit, you'll notice that the LED indicator blinks twice, pauses, blinks twice, etc.: this indicates level 2.
- *To transmit channel 9, 10, 11 or 12:* Press the LevelShift button twice. This shifts buttons 1–4 to level 3 (channels 9–12). Then press the corresponding button within the next 7 seconds. For instance, to transmit channel 12, press the LevelShift button twice, then press button 4. While you transmit, you'll notice that the LED blinks three times, pauses, blinks three times, etc.: this indicates level 3.

NOTE: One second after you stop transmitting level 2 or level 3 (channels 5–12), the remote control automatically returns to level 1 (channels 1–4).

#### What each button/channel does

Your ACE 300 remote controls come pre-programmed so that certain channels command certain functions. If you wish, you can actually assign any channel to any function (see pages 13-14). The following chart indicates what each remote control channel number does, and how to transmit each channel number.

Factory settings of the 12 remote control channels							
Transmitting channel number:	Causes the system to:	Press the LevelShift button?	How many times?	Press button number			
1	arm or disarm and lock or unlock the doors	no	_	1			
2	optionally pop the trunk (if the system is disarmed) no						
3	silently arm or disarm	no	_	3			
4	activate optional accessory function #1	no	_	4			
5	remotely enter or exit valet mode (see page 9)		once	1			
6	activate optional accessory function #2	yes	once	2			
7	activate optional accessory function #3	yes	once	3			
8	activate optional accessory function #4	yes	once	4			
9	activate optional accessory function #5	yes	twice	1			
10	activate optional accessory function #6	yes	twice	2			
11	activate optional accessory function #7	yes	twice	3			
12	activate optional accessory function #8	yes	twice	4			

TO ARM THE SYSTEM	Press button 1 (channel 1) once. You will hear two chirps and the parking lights will flash twice. The dashboard LED will flash repeatedly and the car doors will automatically lock.
TO DISARM THE SYSTEM	Press button 1 (channel 1) again. One chirp and one parking light flash confirms disarming. In addition, the doors will automatically unlock and the interior lights will turn on and stay on for 30 seconds or until you start the engine, whichever occurs first.
TO SILENTLY ARM OR DISARM	Press button 3 (channel 3). The system will arm or disarm with all the indications noted above except the chirp acknowledgments.

TO ACTIVATE
THE PANIC
EE ATI IDE

Press button 1 (channel 1) for 3 seconds. The parking lights will flash repeatedly and the siren will blare for 30 seconds or until you press button 1 again to turn it off. If the ignition is on (indicating you are in the car), the doors will automatically lock to prevent an assailant from entering. If the ignition is off, the doors will unlock, allowing you to enter immediately without fumbling with your keys.

# TO REMOTELY OPEN THE TRUNK . . .

Button 2 (channel 2) can optionally pop the trunk when the system is disarmed. Pressing button 2 while the system is armed will not activate this option to ensure against false alarms.

# TO ACTIVATE OTHER OPTIONS REGARDLESS OF ALARM STATE.....

Button 4 (channel 4) and channels 6–12 (see How to use your keychain remote control on page 6) can activate accessories such as the IntelliStart remote engine starter, remote power window control, electric garage door and entry gate opener(s), ACE 300 systems on your other vehicles, etc.

What about

channel 5? . . . . . Channel 5 controls remote valet mode entry/exit (see page 9).

#### Anti-CodeGrabbing™ (ACG) with Random Code Encryption

A Clifford exclusive that protects you and your automobile from the most effective and onerous car stealing device ever used by car thieves — a code-grabber. Code-grabbers are far more effective and efficient than scanning. Unlike scanners that sequentially transmit one digital code after another until they hit the correct code to disarm the alarm (a process that may take minutes to years depending on the system's total number of codes), code-grabbers literally record, from hundreds of feet away, the code sent by your car alarm remote control. Then the thief simply plays back the code when you're gone, instantly disarming the alarm and unlocking the doors. It's like giving the thief your car keys. Non-Clifford alarms can be defeated that easily. In contrast, Clifford systems use complex digital signal processing and unbreachable encryption to randomly change the digital code every time you use the remote control. Your remote will never transmit the same code twice, and the control unit will never accept the same code twice. Thus the code recorded and played back by the thief's code-grabber will never be accepted by your ACE 300. Only ACG can make a car alarm impervious to code-grabbing, and only Clifford systems have ACG with Random Code Encryption.

#### Enhanced AutoArming™

If this feature is enabled and you forget to remotely arm, ACE 300 automatically arms itself 30 seconds after the doors are closed. For your convenience, if you re-open any door(s) within the 30-second countdown, AutoArming will restart from the beginning once all doors are closed. ACE 300 has these additional AutoArming features:

- AutoArming enable/disable: If you prefer, you may deactivate or reactivate the AutoArming feature. See User-selectable features on pages 13-14.
- AutoArm & Lock: To ensure you can't accidentally lock your keys inside the car, the system is factory-set not to lock the doors upon AutoArming. To change this setting, see User-selectable features on pages 13-14.
- *Instant AutoArming bypass:* Prevents AutoArming when fueling the vehicle and other times when you wish to temporarily bypass AutoArming. To do so, rapidly turn the ignition switch to "ON" then "OFF" twice. You will hear a single siren chirp to confirm that the system will not AutoArm. Your ACE 300 will revert to its normal operating mode when you next start the engine.

#### Valet mode

Whenever the system is put in valet mode, all of the system's security features are switched off. At various times, you will need to turn the system off. For instance, when having your car serviced, washed or parked by a valet.

NOTE: If you temporarily lose the use of your remote controls, you can disarm the system by enabling valet mode.

#### To enable valet mode

- 1. Turn the ignition switch to its "ON" position or start the engine.
- 2. Flip the valet switch. The system's LED will glow for on-going confirmation.

#### To exit valet mode

- 1. Turn the ignition switch to its "ON" position or start the engine.
- 2. Flip the valet switch. The system's LED will turn off to confirm that the system is in its normal operating mode.

#### Remote controlled valet mode entry and exit

You can remotely enable or exit valet mode via your remote control. Just transmit channel 5 (one press of the side LevelShift button, then button 1). In addition to the previously noted indications, two parking light flashes will confirm that you have remotely enabled valet mode, while a single flash confirms exiting of valet mode.

#### Keyless entry in valet mode

Even in valet mode, you can still remotely convenience features. Press button 1 as if disarming and the doors will unlock (indicated by one parking light flash) and the interior light will turn on. Press button 1 again and the doors lock (two flashes).

#### How to interpret the chirps and parking light flashes

When you use the remote control, the system responds with chirps and parking light flashes. These chirp/flash acknowledgments mean:

Chirps/flashes	Meaning				
1	Your system is disarmed or you have remotely exited valet mode (see page 9)				
2	Your system is armed <i>or</i> you have remotely engaged valet mode (see page 9)				
2 and then 4	Armed but a door is open or one of the sensors is malfunctioning (see page 11)				
3	Disarmed but there was an intrusion attempt while you were away (see page 12)				
4	Armed but the hood or trunk is ajar (see page 11)				

#### Selectable starter/ignition interrupt

At the time of installation, you can select whether your ACE 300 interrupts the starter line or the ignition line. The starter/ignition interrupt will be set in either Fault-Proof mode, which lets you start the engine even in the unlikely event of a complete system failure, or Super-Security mode that ensures a thief won't be able to start the engine even if he cuts all the wires or finds the system control unit and disconnects it. Changing the mode requires a minor relay wiring change and installer-only programming. Your local Authorized Clifford Dealer can make the changes for you.

#### AutoLock/AutoUnLock™

For your safety and that of your passengers, the vehicle doors will automatically lock the instant you turn on the ignition to start the engine (see User-selectable features on pages 13-14). When you turn the ignition off to shut down the engine, the AutoUnLock feature automatically unlocks the doors.

#### Dual-level tamper warning

You may set the system to issue a rapid five-chirp warning, instead of the full alarm, whenever the system detects tampering. If there is any further tampering, or if a door, the hood or the trunk is opened at any time, your system will sound the full alarm. See User-selectable features on page 13-14.

#### Smart trunk release option

If the remote trunk release feature was installed, you may use remote control button 2 to remotely pop the trunk. Your system has a built-in electronic interlock to prevent unintentional activation of the remote trunk release when you drive, or when the system is armed.

#### Smart AutoTesting™

Each time you remotely arm your ACE 300, it automatically performs an extensive test of all system triggers and sensors. If the hood or trunk is open when you remotely arm, the system will immediately alert you of the problem by sounding 4 chirps and 4 parking light flashes instead of the usual 2 and 2 (simply disarm, shut the hood or trunk and re-arm to reactivate monitoring of that trigger point). If a door is ajar or if a sensor is malfunctioning, you will receive the usual 2 chirps and 2 flashes, then, 5 seconds later, there will be 4 chirps and 4 flashes. (The door ajar warning will not work on vehicles that have factory-delayed courtesy lights).

NOTE: Since this is a warning indication, you will hear the 4 chirps even if you have the chirp muting feature turned on.

- Specific malfunction identification: The system can also indicate the specific malfunctioning trigger or sensor. If you get the 4-chirp/4-flash signal upon arming, perform the following to identify the malfunctioning trigger or sensor:
- 1. Remotely disarm, then turn on the ignition. The LED status indicator inside your vehicle will be blinking, pause, then repeat.
- 2. Count the number of blinks in one cycle between pauses (for your convenience, the blink cycle repeats a total of 5 times) and refer to the chart below:

Number of LED blinks between pauses	Trigger/sensor indication		
1 blink	Piezo Sensor		
2 blinks*	Door trigger*		
3 blinks	Hood or trunk trigger		

<sup>\*</sup> If your vehicle has a factory-installed feature that turns off or dims the interior courtesy lights several seconds after you exit the vehicle, the system cannot provide this indication.

#### Automatic malfunction bypass

The system automatically bypasses any faulty point and arms all other triggers and sensors to provide the utmost possible protection until you can have the system serviced by your local Authorized Clifford Dealer.

#### TotalRecall™

The system's memory records the identity of the last activated or malfunctioning trigger or sensor, which allows your installer to instantly track down a malfunction. To identify the trigger or sensor held in memory, use the following procedure:

- 1. With the ignition OFF, flick the valet switch.
- 2. Press button 1 to "arm" the system, then again to "disarm."
- 3. The LED will blink 1–3 times. For your convenience, the blink cycle will pause and repeat a total of 5 times. Refer to the chart above.

#### Smart prior intrusion attempt alert

If you hear three chirps when you remotely disarm, it means that a trigger or sensor was activated in your absence. When you enter the vehicle and turn on the ignition (or start the engine), the LED will blink 1–3 times, pause, then repeat the blink cycle 4 more times. Count the number of blinks in one cycle and refer to the chart on page 11.

#### Piezo Sensor

The Piezo Sensor that detects intrusion-related vibrations and impacts.

#### FACI™— False Alarm Control and Test

With FACT, you'll never experience repeated false alarms. If the siren goes off, DO NOT remotely disarm the system; allow it to run for the full siren duration. Before sounding the siren a second time, the system automatically checks for another activated trigger to verify that an intrusion is in progress. Should the siren sound again, you will know for sure that someone is tampering with your vehicle. (To disable FACT, see User-selectable features on pages 13-14.)

#### High-output siren

Loud siren wail when the system detects an intrusion. Your ACE 300 also provides these additional features:

- Long-term chirp silencing: Whenever you wish, you may silence your ACE 300's arm and disarm chirps until you decide to restore them. The parking light flashes will continue to provide visual confirmation of remote controlled arming and disarming. See User-selectable features on pages 13-14.
- Remote controlled chirp muting: Remote controlled chirp muting capabilities are especially valuable when parking late at night in a quiet residential area or any other time when you want to arm or disarm silently. To arm or disarm silently, simply press button 3 on your remote control instead of the usual button 1.

#### SmartPowerUp™ II

If power to the system is ever removed, SmartPowerUp II ensures the system will automatically restore itself to its previous state when power is restored. So if a thief disconnects the power and then restores it in an attempt to start the car, the system will re-arm and instantly sound the siren while immobilizing the vehicle. If your vehicle is to be serviced by a mechanic, just put the system in valet mode via the remote control (see Remote controlled valet mode entry and exit on page 9). If the mechanic needs to interrupt power, your system will automatically return to its valet mode state when power is restored; there will be no alarm activation and no need to provide your mechanic with your remote control and instructions on how to use it.

#### User-selectable features

Your ACE 300 vehicle security system allows you to set many of its features to your own personal preferences. We have made the programming procedures very simple: to make a change, you just flick the valet switch a few times. The system comes from the factory with all of its features pre-programmed as noted in the table below and on the next page. To change any of the settings, use the following procedure. To restore the feature to its factory setting, just repeat the procedure:

- 1. Select the feature you wish to program from the table below and on the following page. Note the number of flicks and chirps.
- 2. Turn your vehicle's ignition switch to its "ON" position.
- 3. Immediately flick the valet switch back and forth, counting the number of chirps you hear. Stop when you reach the number of chirps associated with the feature you wish to program.
- 4. If noted, perform the "Secondary action."
- 5. Wait 3 seconds. You will hear 1-5 chirps (as noted in the "Program completion confirmation" column) and the LED will turn off. Turn the ignition off.
- 6. Repeat steps 1-5 for any other features you wish to program.

Feature	Factory setting	# of flicks & chirps	Secondary action	Program completion confirmation	Result
AutoArming	ON	4	_	1 chirp = OFF 2 chirps = ON	Change state from ON to OFF or vice-versa
AutoArm & Lock	OFF	5	_	1 chirp = OFF 2 chirps = ON	Change state from OFF to ON or vice-versa
Chirp confirmation	ON	6	_	1 chirp = OFF 2 chirps = ON	Change state from ON to OFF or vice-versa
AutoLock & AutoUnLock	ON	9	_	1 chirp = OFF 2 chirps = ON	Change state from ON to OFF or vice-versa
Tamper Warning	OFF	11	_	1 chirp = OFF 2 chirps = ON	Change state from ON to OFF or vice-versa
FACT	ON	12	_	1 chirp = OFF 2 chirps = ON	Change state from ON to OFF or vice-versa
Add a new remote to channel 1 (arm/disarm)	_	13	Press remote control button 1	1 chirp	Button 1/channel 1 code of the new remote control has been memorized
Add a new remote to channel 2 (remote accessory)	_	14	Press remote control button 2	2 chirps	Button 2/channel 2 code of the new remote control has been memorized

continued . . .

Feature	Factory setting	# of flicks & chirps	Secondary action	Program completion confirmation	Result
Add a new remote to channel 3 (silent arm/disarm)		15	Press remote control button 3	3 chirps	Button 3/channel 3 code of the new remote control has been memorized
Add a new remote to channel 4 (optional remote accessory)	_	16	Press remote control button 4	4 chirps	Button 4/channel 4 code of the new remote control has been memorized
Add a new remote to channel 5 (remote valet mode)	_	17	Press the side LevelShift button once, then press button 1	5 chirps	Button 1/channel 5 code of the new remote control has been memorized
Erase all channels	_	19	_	2 chirps	All remote control codes have been erased; program in new remote control(s)

# Example: To change the AutoArming feature from its factory setting of "on" to "off," you would do the following:

- Turn the ignition key to the ON position.
- Flick the valet switch back and forth 4 times (you'll hear a chirp each time to help you count to the total of 4 chirps).
- Wait 3 seconds. The system will sound one more chirp to confirm that the AutoArming setting is now off (1 chirp = off, 2 chirps = on).
- Turn the ignition off. That's all there is to it! To change the

#### Adding new remote controls

For other drivers in your family, or if you wish to control Clifford systems on your other cars with the same remote control, you can buy additional remote controls from any Clifford Dealer and program them into the system yourself. Each ACE 300 will respond to as many as four 12-channel ACG remote controls. To add a new remote control to the system, use the procedures noted in the User-selectable features section on pages 13-14.

#### How to erase the codes of lost or stolen remote controls

If one of your remote controls is ever lost or stolen, you can erase its digital codes from the system memory to make sure that the missing remote control can never be used to disarm your system. To do so, use the "Erase all channels" feature (see User-selectable features on pages 13-14). This will clear all remote control codes from the system memory. Then simply program each remaining and/or replacement remote control as noted in the Adding new remote controls section on the previous page.



World-Class Auto Security™ ACE 300 is covered by

one or more of the following Clifford Electronics U.S.A. patents: 4,158,874; 4,233,642; 4,327,444; 4,383,242; 4,430,685; 4,845,464; 4,887,064; 4,890,108; 4,922,224; 4,997,053; 5,081,667; 5,146,215; 5,157,375; 5,467,070 and other patents pending